



NISOC

نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

Process Data Sheets For 2nd Stage Gas Air Coolers



شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

پروژه

BK

بسته کاری

GCS

صادرکننده

PEDCO

تسهیلات

120

رشته

PR

نوع مدرک

DT

سریال

0005

نسخه

D02

شماره صفحه: ۱ از ۵

طرح نگهداشت و افزایش تولید ۲۷ مخزن

Process Data Sheets For 2nd Stage Gas Air Coolers

نگهداشت و افزایش تولید میدان نفتی بینک

Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval
D02	JUN.2022	IFA	M.Aryafar	M.Fakharian	M.Mehrshad	
D01	DEC.2021	IFA	M.Aryafar	M.Fakharian	M.Mehrshad	
D00	NOV.2021	IFC	M.Aryafar	M.Fakharian	M.Mehrshad	

Class: 2

CLIENT Doc. Number: F0Z-708750

status:

IDC: Inter-Discipline Check

IFC: Issued For Comment

IFA: Issued For Approval

AFD: Approved For Design

AFC: Approved For Construction

AFP: Approved For Purchase

AFQ: Approved For Quotation

IFI: Issued For Information

AB-R: As-Built for CLIENT Review

AB-A: As-Built -Approved



NISOC

شماره پیمان:
۰۵۳ - ۰۷۳ - ۹۱۸۴

نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

Process Data Sheets For 2nd Stage Gas Air Coolers





نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D02	0005	DT	PR	120	PEDCO	GCS	BK



شماره صفحه: ۲ از ۵

CHANGE RECORD SHEET

PAGE	D00	D01	D02	D03
1	X	X	X	
2	X	X	X	
3	X	X	X	
4	X	X	X	
5	X	X	X	
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		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض												
		Process Data Sheets For 2nd Stage Gas Air Coolers												
شماره پیمان: ۰۳ - ۰۳ - ۹۱۸۴		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سویال	نسخه	شماره صفحه: ۳ از ۵				
		BK	GCS	PEDCO	120	PR	DT	0005	D02					
1	Note									Rev				
2	Service Of Unit	2nd Stage Gas Compression Cooler			Case		Summer Case							
3	Service Type	Sour Service			Tag No.		AE-2102 A/B/C							
4	Heat Duty(Normal x Overdesign)	MW	0.493	x	1.1	No. Req'd	3	Working	2	Standby	1	Total	3	02
5	Draught	Induced Draft Type			Winterization Control		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
6	Cyclic Service				Misc. Conn's:		<input type="checkbox"/> TI <input type="checkbox"/> PI							
7	P&ID Number	BK-GCS-PEDCO-120-PR-PI-0011												
8	TUBE SIDE PERFORMANCE OF ONE UNIT													
9	Fluid Name	Hydrocarbon												
10	Fluid Quantity Total (Normal)	kg/hr	8664		IN		Out							
11			IN	Out	Molecular Weight	(V)	-	24.52	24.56		02			
12	- Vapor	kg/h	8664.0	8626.3		(L)	-	18.05		02				
13	- Liquid	kg/h	-	37.4	Density	(V)	kg/m ³	42.92	59.39		02			
14						(L)		981.90						
15	- Water	kg/h	-		Thermal Cond.	(V)	W/m-K	0.047	0.037		02			
16						(L)	-	0.652						
17	Temperature	°C	142.3	60	Specific Heat	(V)	kJ/kgmol°C	59.25	58.95		02			
18	Operating Pressure	barg	54.8	54.1		(L)	-	77.81		02				
19	Pressure Drop	bar Allowable	0.7		Viscosity	(V)	cP	0.016	0.014					
20	Pour Point/Freeze Point	°C	-	/		(L)	-	0.494						
21					Latent Heat		kJ/kg	-	-					
22					Fouling Resistance		m ² °C/W	0.0002						
23	AIR SIDE PERFORMANCE OF ONE UNIT													
24	Inlet Air Temperature	°C	50.26		Min. Ambient Air Temperature	°C	5				02			
25	Barometric Pressure	milibar	990.7 -914.2		Altitude	m	12.5				02			
26	Air Side Fouling Resistance	m ² °C/W	0.00035											
27	Type Of Control													
28	Louver	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Action Control	<input type="checkbox"/> Auto <input checked="" type="checkbox"/> Manual								
29	Fan Pitch	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Action Control	<input checked="" type="checkbox"/> Auto <input type="checkbox"/> Manual								
30	VFD	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
31	CONSTRUCTION													
32	Design Pressure	barg	62		Header Material	SS 316L				02				
33	Vacuum Pressure @ Temp. of		-		Header Corr. Allow.	-	mm							
34	Design Temperature	°C	175		Tube Material	SS 316L								
35	MDMT	°C	-28		P.W.H.T.(Process Reason)					02				
36	Slope	%	Note2		Nozzle Size	in	-Inlet	6						
37	Chemical Cleaning	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Nozzle Size	in	-Outlet	6						
38	Heating Fluid													
39	Heating Fluid				Flow Rate	kg/s								
40	Temperature(in/out)	°C	/		Inlet Pressure	barg	/							
41	Design Temperature	°C			Pressure Drop(allowable)	bar								
42	Inlet/Outlet Nozzle	in	/		Design Pressure	barg								
43	NOTES													
44	1	It will be finalized after receiving compressor supplier data.												
45	2	Bundle to be self draining. The last row should 1% sloped.												
46	3	Deleted.										02		
47	4	Deleted.										02		
48	5	For maximum, minimum and average temperature, min design relative humidity refer to "BK-GNRL-PEDCO-000-PR-DB-0001".												
49	6	Material requirement should be in compliance with NACE MR 0175/ISO 15156 and Technical Specification for Material Requirements in Sour service												
50		BK-GNRL-PEDCO-000-PI-SP-0008, <u>IPS-MPM-200</u> .												
51	7	Air coolers over sizing shall be considered 10 % on maximum duty or flow rate, whichever is greater.										02		

		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض												
		Process Data Sheets For 2nd Stage Gas Air Coolers												
شماره پیمان: ۰۳ - ۰۳ - ۹۱۸۴		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سویال	نسخه	شماره صفحه: ۴ از ۵				
		BK	GCS	PEDCO	120	PR	DT	0005	D02					
1	Note									Rev				
2	Service Of Unit	2nd Stage Gas Compression Cooler			Case			Winter Case						
3	Service Type	Sour Service			Tag No.			AE-2102 A/B/C						
4	Heat Duty(Normal x Overdesign)	MW	0.449	x	1.1	No. Req'd	3	Working	2	Standby	1	Total	3	02
5	Draught	Induced Draft Type			Winterization Control			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
6	Cyclic Service				Misc. Conn's:			<input type="checkbox"/> TI <input type="checkbox"/> PI						
7	P&ID Number	BK-GCS-PEDCO-120-PR-PI-0011												
8	TUBE SIDE PERFORMANCE OF ONE UNIT													
9	Fluid Name	Hydrocarbon												
10	Fluid Quantity Total (Normal)	kg/hr	7585		IN			Out						
11			IN	Out	Molecular Weight	(V)	-	21.56	21.56					
12	- Vapor	kg/h	7585	7585		(L)	-	-	-					
13	- Liquid	kg/h	-	-	Density	(V)	kg/m ³	36.11	49.41					
14						(L)	-	-	-					
15	- Water	kg/h	-	-	Thermal Cond.	(V)	W/m-K	0.050	0.039					
16						(L)	-	-	-					
17	Temperature	°C	149.5	60	Specific Heat	(V)	kJ/kgmol°C	53.12	51.31					
18	Operating Pressure	barg	54.8	54.1		(L)	-	-	-					
19	Pressure Drop	bar Allowable	0.7		Viscosity	(V)	cP	0.016	0.014					
20						(L)	-	-	-					
21	Pour Point/Freeze Point	°C	-	/	-	Latent Heat	kJ/kg	-	-					
22					Fouling Resistance	m ² °C/W		0.0002						
23	AIR SIDE PERFORMANCE OF ONE UNIT													
24	Inlet Air Temperature	°C	50.26		Min. Ambient Air Temperature	°C		18.75						
25	Barometric Pressure	milbar	1005.43 -1007.77		Altitude	m		12.5						
26	Air Side Fouling Resistance	m ² °C/W	0.00035											
27	Type Of Control													
28	Louver	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Action Control			<input type="checkbox"/> Auto <input checked="" type="checkbox"/> Manual							
29	Fan Pitch	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Action Control			<input checked="" type="checkbox"/> Auto <input type="checkbox"/> Manual							
30	VFD	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
31	CONSTRUCTION													
32	Design Pressure	barg	60		Header Material	SS 316L								
33	Vacuum Pressure @ Temp. of				Header Corr. Allow.	-		mm						
34	Design Temperature	°C	175		Tube Material	SS 316L								
35	MDMT	°C	3.24		P.W.H.T.(Process Reason)									
36	Slope	%	Note2		Nozzle Size	in	-Inlet	6						
37	Chemical Cleaning	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Nozzle Size	in	-Outlet	6							
38	Heating Fluid													
39	Heating Fluid				Flow Rate	kg/s								
40	Temperature(in/out)	°C	/		Inlet Pressure	barg		/						
41	Design Temperature	°C			Pressure Drop(allowable)	bar								
42	Inlet/Outlet Nozzle	in	/		Design Pressure	barg								
43	NOTES													
44	1	It will be finalized after receiving compressor supplier data.												
45	2	Bundle to be self draining. The last row should 1% sloped.												
46	3	Deleted.												
47	4	Deleted.												
48	5	For maximum, minimum and average temperature, min design relative humidity refer to "BK-GNRL-PEDCO-000-PR-DB-0001".												
49	6	Material requirement should be in compliance with NACE MR 0175/ISO 15156 and Technical Specification for Material Requirements in Sour service												
50	BK-GNRL-PEDCO-000-PI-SP-0008, <u>IPS-MPM-200</u> .													
51	7	Air coolers over sizing shall be considered 10 % on maximum duty or flow rate, whichever is greater.												



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض



Process Data Sheets For 2nd Stage Gas Air Coolers

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۵ از ۵
۰۵۳ - ۰۷۳ - ۹۱۸۴	BK	GCS	PEDCO	120	PR	DT	0005	D02	

1	Note														Rev
2	TUBE SIDE ENTHALPY / PHYSICAL PROPERTIES PROFILES														
3	INLET PRESSURE (54.8 BARG)														02
4	Vapour Properties							Liquid Properties							
5	Temperature	Enthalpy	Vapor Frac	Vapour Density	Vapour Mass	Vapour	Vapour	Liquid	Liquid	Liquid	Liquid	Surface	Pseudo	Pseudo	
6	C	[kJ/kgmol]		[kg/m3]	Specific Heat	Viscosity	Thermal	Density	Mass	Viscosity	Thermal	Tension	Pc	Tc	
7					[kJ/kg-C]	[Cp]	Conductivity	[kg/m3]	Specific	[Cp]	Conductivity	dyn/cm	(Barg)	(C)	
8							[W/m K]		Heat		[W/m K]				
9									[kJ/kg-C]						
10	142	-85692	1.00	42.92	2.42	0.016	0.047	-	-	-	-	-	-	-	-
11	134	-86178	1.00	44.10	2.40	0.016	0.046	-	-	-	-	-	-	-	-
12	126	-86662	1.00	45.36	2.39	0.016	0.045	-	-	-	-	-	-	-	-
13	118	-87143	1.00	46.71	2.38	0.016	0.044	-	-	-	-	-	-	-	-
14	109	-87623	1.00	48.17	2.37	0.015	0.043	-	-	-	-	-	-	-	-
15	101	-88101	1.00	49.74	2.37	0.015	0.042	-	-	-	-	-	-	-	-
16	93	-88579	1.00	51.45	2.37	0.015	0.041	-	-	-	-	-	-	-	-
17	85	-89056	1.00	53.32	2.37	0.015	0.040	-	-	-	-	-	-	-	-
18	76	-89591	1.00	55.40	2.37	0.015	0.039	969.0	4.33	0.385	0.666	62.9	219.9	373.6	
19	68	-90177	1.00	57.72	2.39	0.014	0.038	975.5	4.32	0.435	0.659	64.4	219.9	373.6	
20	60	-90741	0.99	60.30	2.41	0.014	0.037	982.0	4.31	0.494	0.652	65.8	219.9	373.5	
21	OUTLET PRESSURE (51.8 BARG)														02
22	Vapour Properties							Liquid Properties							
23	Temperature	Enthalpy	Vapor Frac	Vapour Density	Vapour Mass	Vapour	Vapour	Liquid	Liquid	Liquid	Liquid	Surface	Pseudo	Pseudo	
24	C	[kJ/kgmol]		[kg/m3]	Specific Heat	Viscosity	Thermal	Density	Mass	Viscosity	Thermal	Tension	Pc	Tc	
25					[kJ/kg-C]	[Cp]	Conductivity	[kg/m3]	Specific	[Cp]	Conductivity	dyn/cm	(Barg)	(C)	
26							[W/m K]		Heat		[W/m K]				
27									[kJ/kg-C]						
28	142	-85679	1.00	42.35	2.41	0.016	0.047	-	-	-	-	-	-	-	-
29	134	-86164	1.00	43.51	2.40	0.016	0.046	-	-	-	-	-	-	-	-
30	126	-86647	1.00	44.74	2.39	0.016	0.045	-	-	-	-	-	-	-	-
31	118	-87128	1.00	46.07	2.38	0.016	0.043	-	-	-	-	-	-	-	-
32	109	-87606	1.00	47.50	2.37	0.015	0.042	-	-	-	-	-	-	-	-
33	101	-88084	1.00	49.05	2.36	0.015	0.041	-	-	-	-	-	-	-	-
34	93	-88560	1.00	50.73	2.36	0.015	0.041	-	-	-	-	-	-	-	-
35	85	-89037	1.00	52.56	2.36	0.015	0.040	-	-	-	-	-	-	-	-
36	76	-89567	1.00	54.60	2.37	0.015	0.039	969.01	4.33	0.385	0.666	62.9	219.9	373.6	
37	68	-90153	1.00	56.87	2.38	0.014	0.038	975.51	4.32	0.435	0.659	64.4	219.9	373.6	
38	60	-90716	0.99	59.39	2.40	0.014	0.037	981.94	4.31	0.494	0.652	65.8	219.9	373.5	
39	Notes:														
40	Refer to hazardous area classification layout, all instrumentation and electrical devices shall be suitable for: Zone:2 , Gas Group:IIA ,														
41	Temperature Class:T3														
42															